Abstract

Multilevel thresholding is a method that is widely used in image segmentation. The thresholding problem is treated as an optimization problem with an objective function. In this article, a simple and histogram based approach is presented for multilevel thresholding in image segmentation. The proposed method combines Tsallis objective function and Particle Swarm Optimization (PSO). The PSO algorithm is used to find the optimal threshold values which maximize the Tsallis objective function. Simulations are performed over various standard test images with different number of thresholds and comparisons are performed with Genetic Algorithm (GA). The experimental results show that the proposed PSO based thresholding method performs better than the GA method.

Reference


Index Terms

Computer Science Image Analysis
Key words

Image thresholding
Tsallis objective function
particle swarm optimization